

-001

159171

Wednesday, April 05, 2017 1:33:36 PM

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 4/6/2017 **Start Qty:** 4.00

4

Cust Item ID:

Required Date: 4/21/2017 **Req'd Qty:** 4.00

4

Customer:

Reference: SCHEDULED/C Dissent

Approvals: Process Plan: 21 Date: APR 06 2017

Tooling: _____ **Date:** _____

Run Start *NR1*

QC: 9-89 Date: SPC (Y/N): Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
-----------------	---------------------

D2933 Rev C

3.25

100

HAAS CNC VERTICAL MACHINING #1

1.71

HAAS 1

HAAS CNC vertical machine #1

Memo

Program part number and batch number.1-Inspect part number and batch number are programmed correctly.2-Machine Step No 1 of Folio and visually inspect as per dwg D2933 & attached Dimension Sheet 3-Machine Step No 2 of Folio and visually inspect as per

110

0.00

110

CONVENTIONAL MILLING MACHINE

0.36

Mill Conv

Conventional Milling Machine

Memo

Machine Keyway and inspect per attached dimension sheet

120

QC1- Inspection performed by CMM

0.00

120

QC

Memo

0.00

Quality Control

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

Work Order ID 159171

Wednesday, April 05, 2017 1:33:36 PM

159171

Page 2

Item ID: D2933-1BL Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Saddle LH In, 206
Start Date: 4/6/2017 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 4/21/2017 Req'd Qty: 4.00 ***4*** Customer:
Reference: SCHEDULED/C

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.08				4	0		DAS 49 9-89 17/04/13
140 *140* HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 Memo	0.00 0.60				(x4)	0		201704/19 BEB
150 *150* SprayPaint Spray Painting	Spray Painting per QSI005 4.2 Memo *** MASK ALL HOLES AS PER PAR16-484*** SPRAY PAINT BLUE BATCH: <u>136082</u>	0.00 0.00				4			DAS 41 9-89 APR 19 2017
			Primer	136082					
			Paint	134120					
			Clear	133154					

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Work Order ID 159171

Wednesday, April 05, 2017 1:33:36 PM

159171

Page 3

Item ID: D2933-1BL Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Saddle LH In, 206
Start Date: 4/6/2017 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 4/21/2017 Req'd Qty: 4.00 ***4*** Customer:
Reference: SCHEDULED/C

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC14- Inspect Spray Paint	0.00				4			DAS 39 9-89 APR 24 2017
160									
QC	Memo	0.04							
Quality Control									
170	Identify as per dwg & Stock Location: <u>51389</u>	0.00				4			DAS 6 9-89 APR 24 2017
170									
Packaging	Memo	0.04							
Packaging									
180	QC21- Final Inspection - Work Order Release	0.00							
180									
QC	Memo	0.40							17/4/26
Quality Control									

DAS
21
9-89 APR 24 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Picklist Print

Wednesday, April 05, 2017 1:33:35 PM

Page 1

Work Order ID: 159171

159171

Parent Item: D2933-1BL

***D2933-1BL ***

Parent Item Name: Saddle LH In, 206

Start Date: 4/6/2017

Required Date: 4/21/2017

Start Qty: 4.00

Required Qty: 4.00

Comments:

IPP: B00.06.26New DWG rev (mpp 2069)EC

IPP Rev:C As per Rev C 07-03-19 JLM

15.10.09 ADDED BL DD VERF:JLM

PAR16-484 DD VERF:JLM

IPP REV:D

IPP REV:E 16.01.22

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6101-001		Manufactured	No			100	Each	37.0000	1	4			

D6101-001

Saddle Billet

Location

Loc Qty

Loc Code

MAT042

37

151620

1

153932

16

155195

20

4

DAS
45
89

17-4-10

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

DART AEROSPACE LTD		Work Order: 159171
Description: 206 Saddle, Inboard, Left side		Part Number: D2933-1
Inspection Dwg: D2933 Rev: C DSK: Rev:		Page 1 of 1

FIRST ARTICLE INSPECTION DIMENSION SHEET

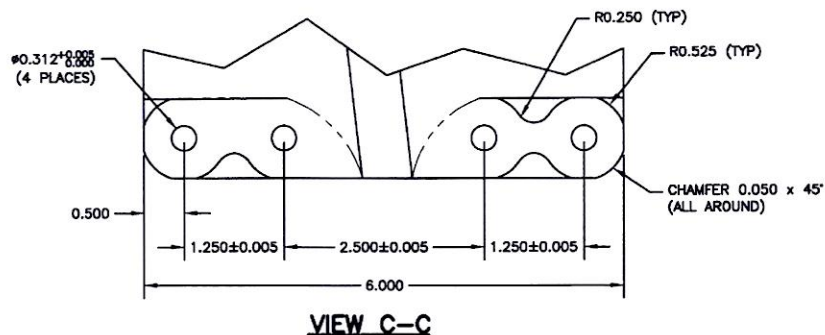
☒ First Article ☐ Prototype

				Record Actual Dimensions				
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	5
A	0.100	0.140		.118	.119	.116	.119	
B	0.100	0.140		.118	.118	.116	.119	
C	0.100	0.140		.112	.110	.114	.115	
D	0.210	0.230		.226	.225	.222	.221	
E	1.245	1.255		1.250	1.250	1.250	1.250	
F	1.245	1.255		1.250	1.250	1.250	1.250	
G	2.495	2.505		2.500	2.500	2.500	2.500	
H	0.510	0.515		.512	.512	.512	.512	
I	1.572	1.582		1.577	1.577	1.577	1.577	
J	2.495	2.505		2.500	2.500	2.500	2.500	
K	0.257	0.262		.259	.259	.259	.259	
L	0.312	0.317		.314	.314	.314	.314	
M	0.235	0.240		.237	.236	.238	.236	
N	0.100	0.140		.117	.120	.120	.118	
O	0.540	0.560		.544	.550	.551	.550	
P	0.490	0.510		.495	.495	.495	.495	
Q	3.715	3.725		3.720	3.720	3.720	3.720	
R	2.470	2.510		2.490	2.490	2.490	2.490	
S	0.240	0.270		.256	.253	.252	.252	
T	0.100	0.180		.135	.135	.135	.135	
U	1.625	1.635		1.630	1.630	1.630	1.630	
V	1.362	1.372		1.367	1.367	1.367	1.367	
W	0.316	0.321		.316	.316	.316	.316	
X	1.125	1.145		1.135	1.135	1.135	1.135	
Y	1.565	1.585		1.575	1.575	1.575	1.575	
Z	0.178	0.198		.188	.188	.188	.188	
AA								
AB								
AC								
AD								
AE								

Accept/Reject

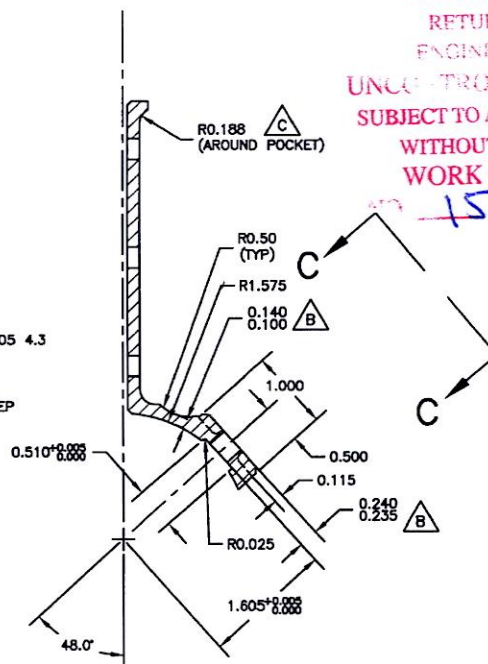
Measured by: DAS 20 9-89	Date: 17-04-13
Audited by: 49 9-89	Date: 17/04/13
Prototype Approval: N/A	Date: N/A

Rev	Date	Change	Revised by	Approved
A		New Issue	RF	
B	02.12.12	Re-format; Added Dim. X-Y, DT8683, DT8686, DT8690 & DT8695 A/B	KJ/RF	
C	06.10.03	Removed DT8683, DT8686 & DT8690	KJ/JLM	
D	07.03.21	Revised per drawing revision C	KJ/JLM	
E	08.01.16	DT8695 A/B removed from dimension Y	KJ/EC/DD	

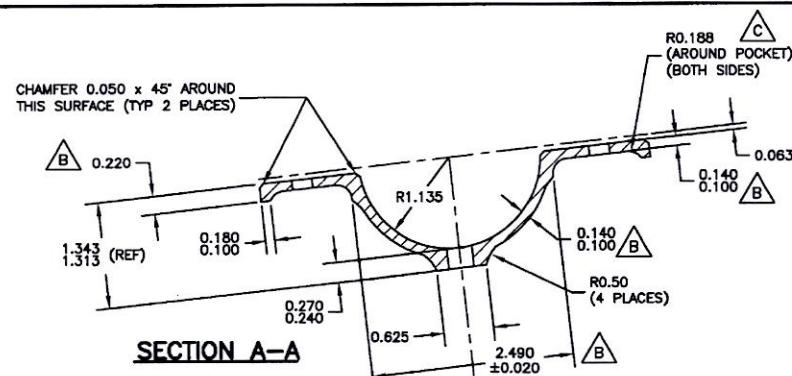


D2933-1 LH SADDLE (SHOWN)
D2933-2 RH SADDLE (OPPOSITE)

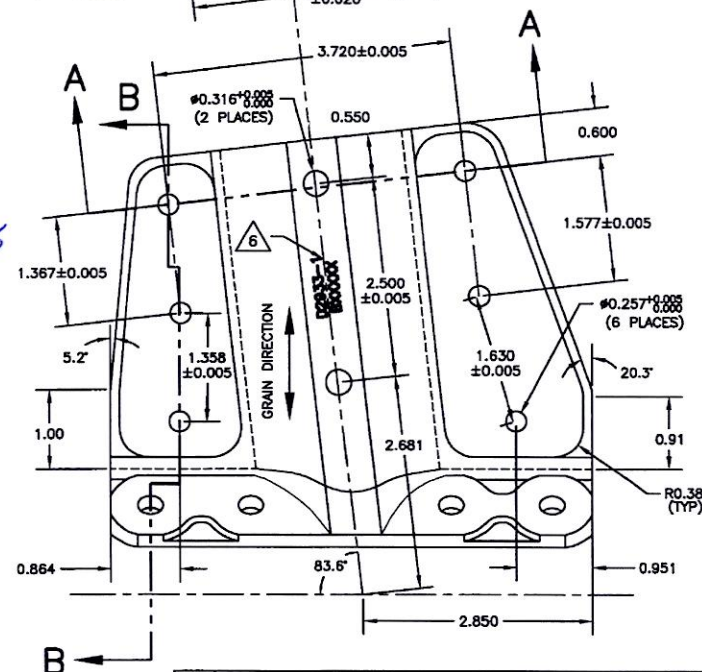
- NOTES:**
- 1) MATERIAL: ALUMINUM 7075-T7351 (QQ-A-250/12)
(MAKE FROM D6101-001 SADDLE BILLET, 7075)
 - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
 - 3) BREAK ALL SHARP EDGES 0.010 TO 0.020
 - 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
 - 5) ALL DIMENSIONS ARE IN INCHES
 - 6) ENGRAVE PART AND BATCH NUMBER IN THIS AREA 0.010 TO 0.015 DEEP



SECTION B-B



SECTION A-A



SHOP COPY

RETURN TO

ENGINEERING

UNCONTROLLED COPY

SUBJECT TO AMENDMENT

WITHOUT NOTICE

WORK ORDER

159171 MGS

170406

C	06.11.09	R0.188 WAS R0.30 TO R0.25
B	00.05.29	CHANGED GEOMETRY AND MATERIAL
A	99.10.29	NEW ISSUE
DESIGN	BY AH	DRAWN BY CB
CHECKED	BY AH	APPROVED BY AH
DATE	06.11.09	TITLE
		D2933
		SADDLE INSIDE

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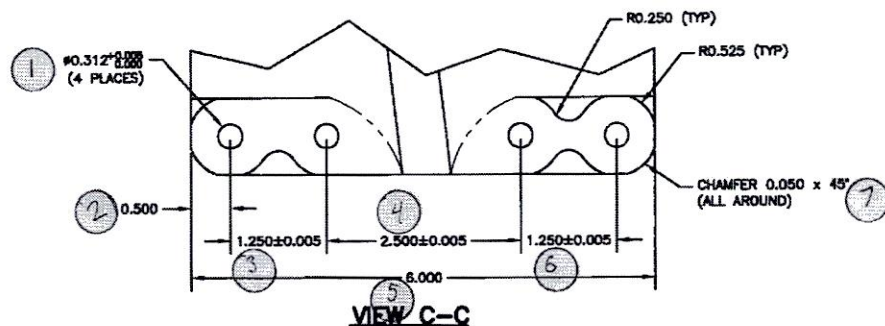
DART DART AEROSPACE USA, INC.
BELLEVUE, WA

REV. C

SHEET 1 OF 1

SCALE

2:3

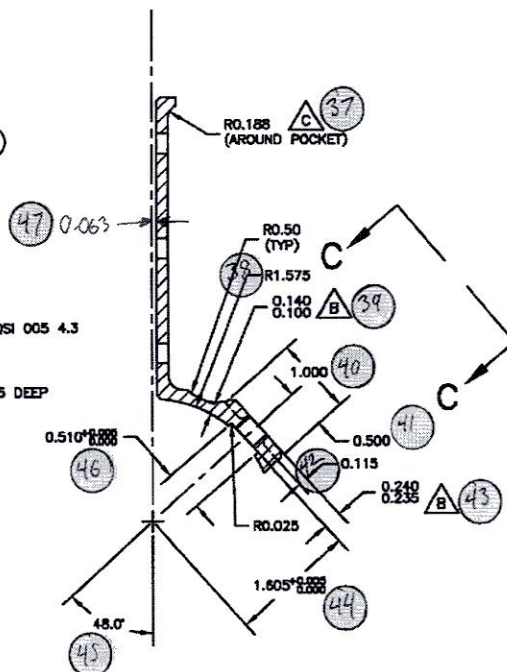


D2933-1 LH SADDLE (SHOWN)

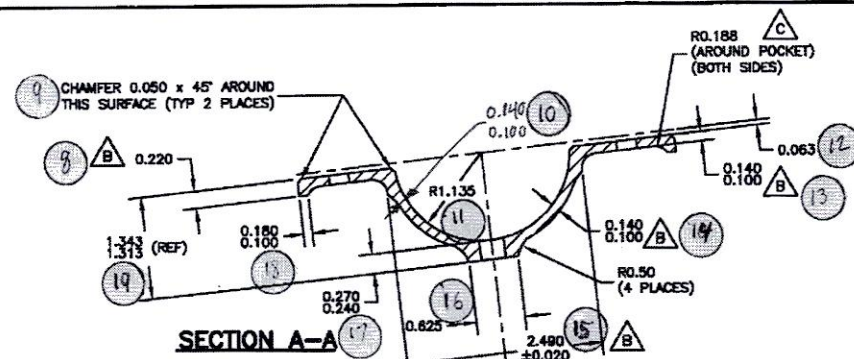
~~D2933-2 RH SADDLE (OPPOSITE)~~

NOTES:

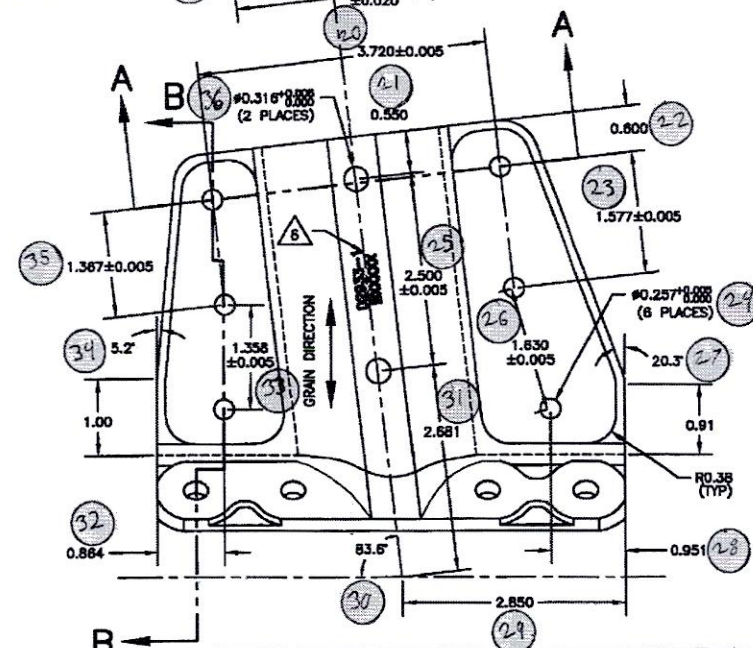
- 1) MATERIAL: ALUMINUM 7075-T7351 (00-A-250/12)
(MAKE FROM D8101-001 SADDLE BILLET, 7075)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
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- 5) ALL DIMENSIONS ARE IN INCHES
- 6) ENGRAVE PART AND BATCH NUMBER IN THIS AREA 0.010 TO 0.015 DEEP



SECTION B-B



SECTION A-A



C	06.11.09	R0.188 WAS R0.30 TO R0.25
B	00.05.29	CHANGED GEOMETRY AND MATERIAL
A	99.10.29	NEW ISSUE
DESIGN	4	DRAWN BY C.B.
CHECKED	PH	APPROVED
DATE	06.11.09	TITLE
		SADDLE INSIDE

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BELLINGHAM, WA

DRAWING NO. D2933

SHEET 1 OF 1

SCALE

23

RELEASED

07.02.12